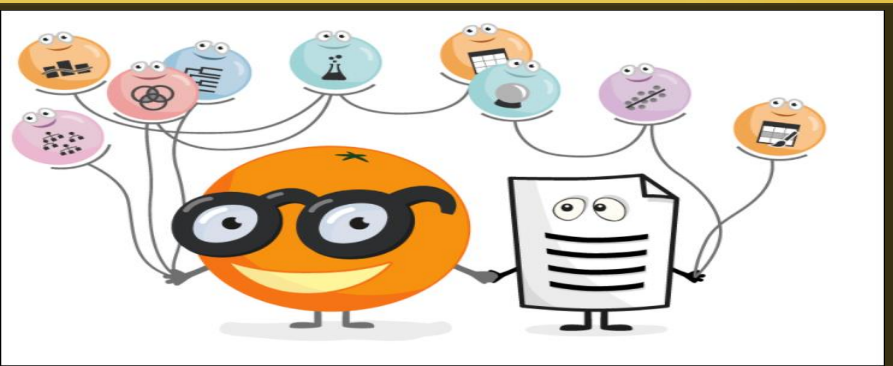
KOOKMIN UNIVERSITY

인공지능 데이터 분석
orange

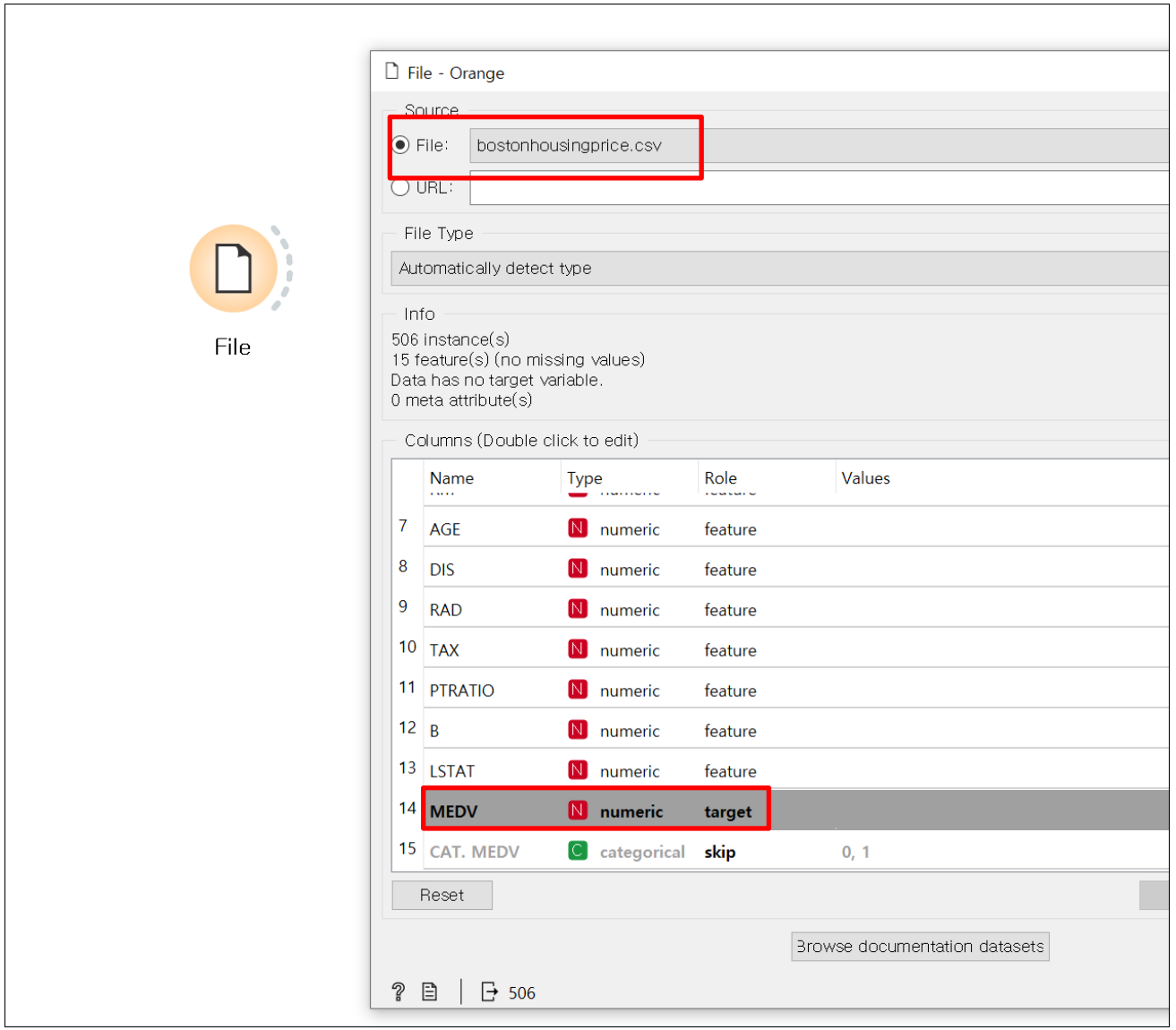


소프트웨어융합대학원
진혜진

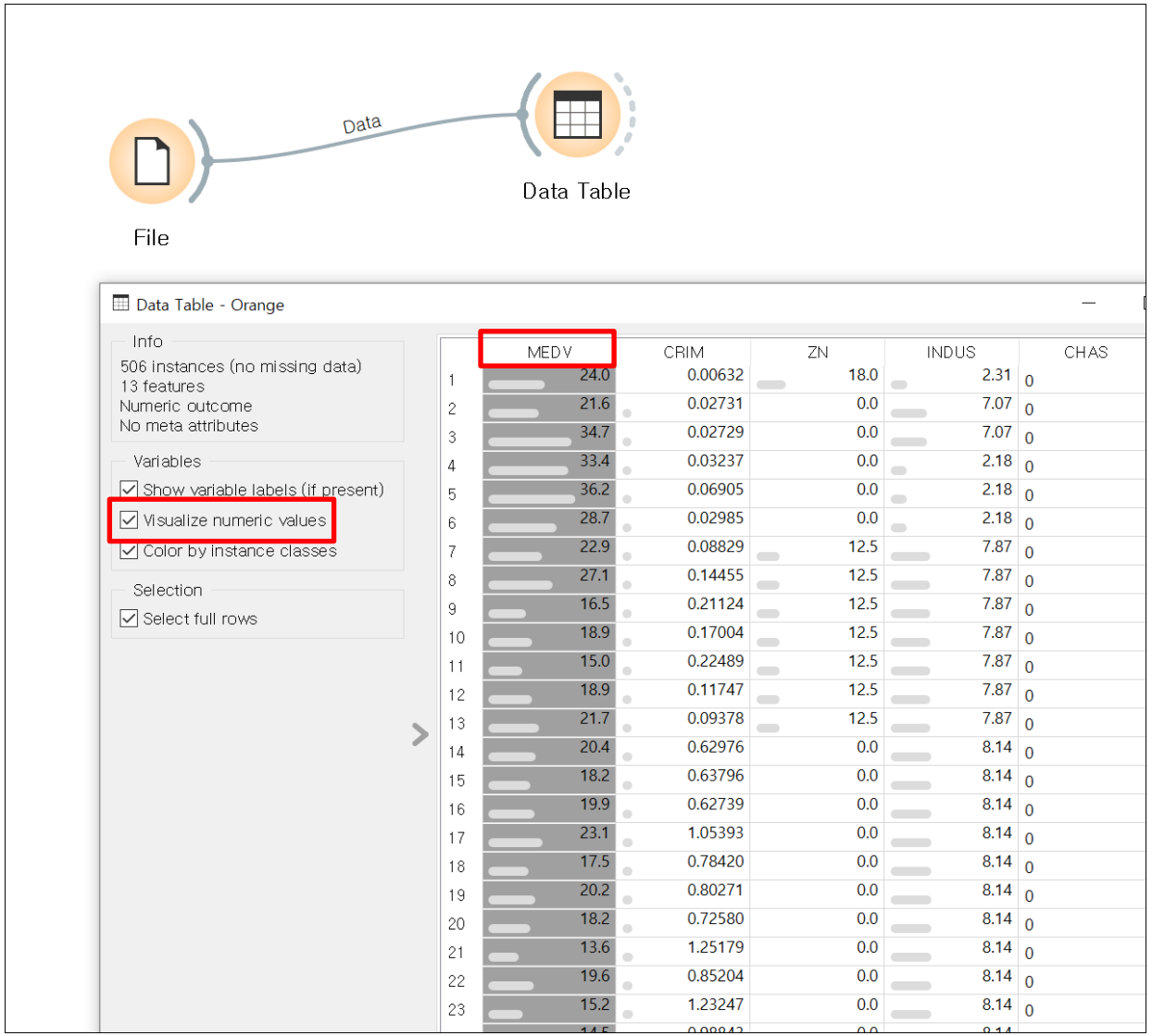
boston-housing-price

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	CRIM	ZN	INDUS	CHAS	NOX	RM	AGE	DIS	RAD	TAX	PTRATIO	B	LSTAT	MEDV	CAT. MED
2	0.00632	18	2.31	0	0.538	6.575	65.2	4.09	1	296	15.3	396.9	4.98	24	0
3	0.02731	0	7.07	0	0.469	6.421	78.9	4.9671	2	242	17.8	396.9	9.14	21.6	0
4	0.02729	0	7.07	0	0.469	7.185	61.1	4.9671	2	242	17.8	392.83	4.03	34.7	1
5	0.03237	0	2.18	0	0.458	6.998	45.8	6.0622	3	222	18.7	394.63	2.94	33.4	1
6	0.06905	0	2.18	0	0.458	7.147	54.2	6.0622	3	222	18.7	396.9	5.33	36.2	1
7	0.02985	0	2.18	0	0.458	6.43	58.7	6.0622	3	222	18.7	394.12	5.21	28.7	0
8	0.08829	12.5	7.87	0	0.524	6.012	66.6	5.5605	5	311	15.2	395.6	12.43	22.9	0
9	0.14455	12.5	7.87	0	0.524	6.172	96.1	5.9505	5	311	15.2	396.9	19.15	27.1	0
10	0.21124	12.5	7.87	0	0.524	5.631	100	6.0821	5	311	15.2	386.63	29.93	16.5	0
11	0.17004	12.5	7.87	0	0.524	6.004	85.9	6.5921	5	311	15.2	386.71	17.1	18.9	0
12	0.22489	12.5	7.87	0	0.524	6.377	94.3	6.3467	5	311	15.2	392.52	20.45	15	0
13	0.11747	12.5	7.87	0	0.524	6.009	82.9	6.2267	5	311	15.2	396.9	13.27	18.9	0
14	0.09378	12.5	7.87	0	0.524	5.889	39	5.4509	5	311	15.2	390.5	15.71	21.7	0
15	0.62976	0	8.14	0	0.538	5.949	61.8	4.7075	4	307	21	396.9	8.26	20.4	0
16	0.63796	0	8.14	0	0.538	6.096	84.5	4.4619	4	307	21	380.02	10.26	18.2	0
17	0.62739	0	8.14	0	0.538	5.834	56.5	4.4986	4	307	21	395.62	8.47	19.9	0
18	1.05393	0	8.14	0	0.538	5.935	29.3	4.4986	4	307	21	386.85	6.58	23.1	0

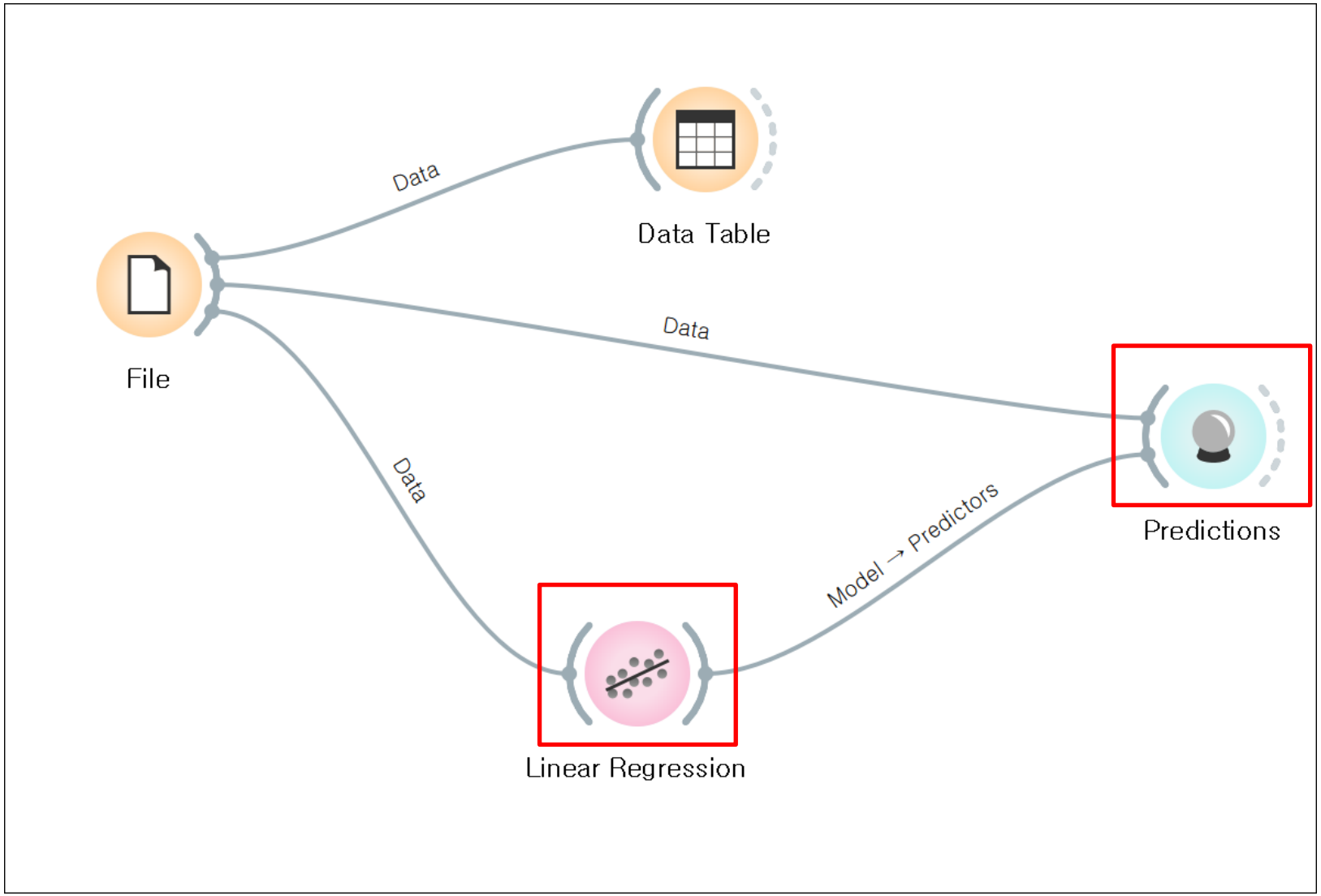
지도 학습_보스턴 주택 가격 데이터



지도 학습_보스턴 주택 가격 데이터



지도 학습_보스턴 주택 가격 데이터



지도 학습_보스턴 주택 가격 데이터

Predictions - Orange

Restore Original Order

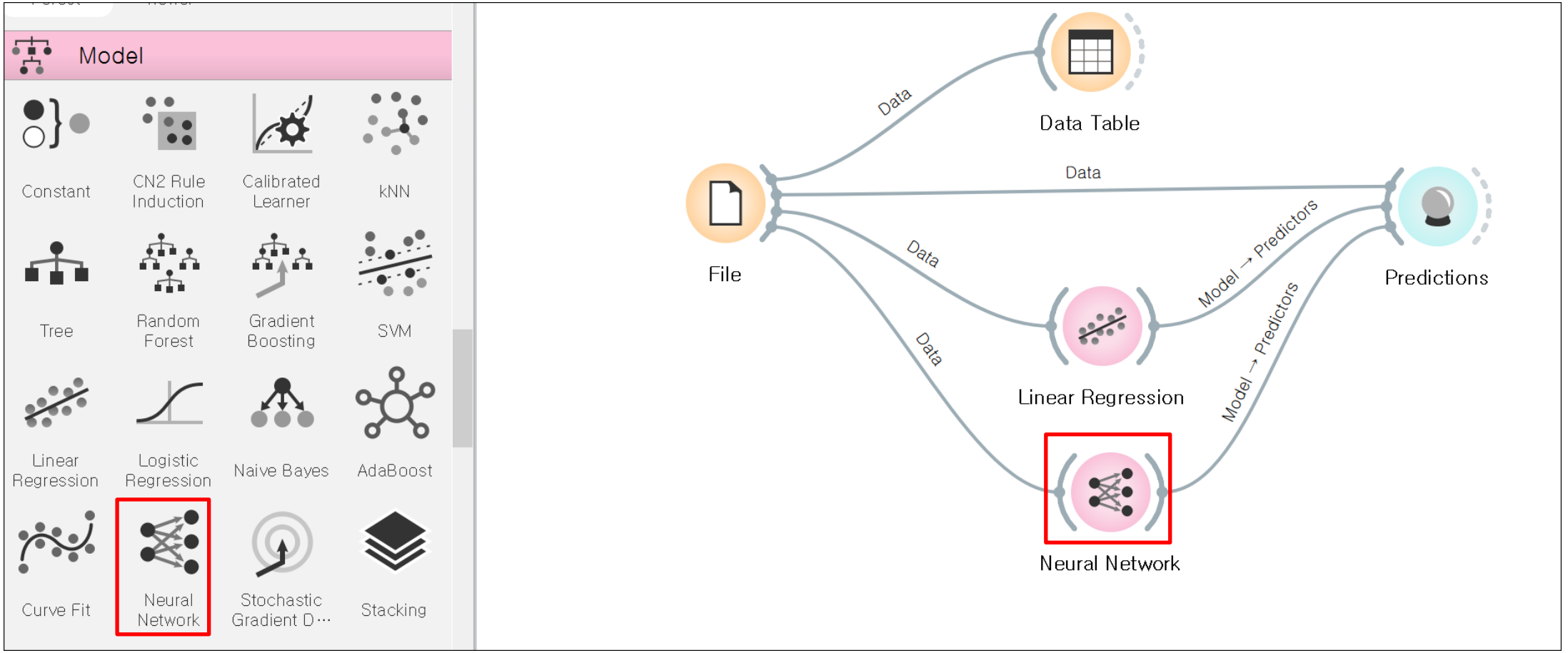
	Linear Regression	MEDV	CRIM	ZN	INDUS	CHAS	NOX	RM
1	30.0	24.0	0.00632	18.0	2.31	0	0.5380	6.575
2	25.0	21.6	0.02731	0.0	7.07	0	0.4690	6.421
3	30.6	34.7	0.02729	0.0	7.07	0	0.4690	7.185
4	28.6	33.4	0.03237	0.0	2.18	0	0.4580	6.998
5	27.9	36.2	0.06905	0.0	2.18	0	0.4580	7.147
6	25.3	28.7	0.02985	0.0	2.18	0	0.4580	6.430
7	23.0	22.9	0.08829	12.5	7.87	0	0.5240	6.012
8	19.5	27.1	0.14455	12.5	7.87	0	0.5240	6.172
9	11.5	16.5	0.21124	12.5	7.87	0	0.5240	5.631
10	18.9	18.9	0.17004	12.5	7.87	0	0.5240	6.004
11	19.0	15.0	0.22489	12.5	7.87	0	0.5240	6.377
12	21.6	18.9	0.11747	12.5	7.87	0	0.5240	6.009
13	20.9	21.7	0.09378	12.5	7.87	0	0.5240	5.889
14	19.6	20.4	0.62976	0.0	8.14	0	0.5380	5.949
15	19.3	18.2	0.63796	0.0	8.14	0	0.5380	6.096
16	19.3	19.9	0.62739	0.0	8.14	0	0.5380	5.834

Show perfomance scores

Model	MSE	RMSE	MAE	R2
Linear Regression	21.895	4.679	3.271	0.741

506 | M 506 | 1×506

지도 학습_보스턴 주택 가격 데이터



지도 학습_보스턴 주택 가격 데이터

Predictions - Orange

Restore Original Order

	Linear Regression	Neural Network	MEDV	CRIM	ZN	INDUS	CHAS	NOX
1	30.0	24.9	24.0	0.00632	18.0	2.31	0	0.5380
2	25.0	22.6	21.6	0.02731	0.0	7.07	0	0.4690
3	30.6	31.9	34.7	0.02729	0.0	7.07	0	0.4690
4	28.6	31.9	33.4	0.03237	0.0	2.18	0	0.4580
5	27.9	31.6	36.2	0.06905	0.0	2.18	0	0.4580
6	25.3	25.9	28.7	0.02985	0.0	2.18	0	0.4580
7	23.0	19.3	22.9	0.08829	12.5	7.87	0	0.5240
8	19.5	19.5	27.1	0.14455	12.5	7.87	0	0.5240
9	11.5	17.0	16.5	0.21124	12.5	7.87	0	0.5240
10	18.9	18.7	18.9	0.17004	12.5	7.87	0	0.5240
11	19.0	20.2	15.0	0.22489	12.5	7.87	0	0.5240
12	21.6	19.0	18.9	0.11747	12.5	7.87	0	0.5240
13	20.9	20.2	21.7	0.09378	12.5	7.87	0	0.5240
14	19.6	18.9	20.4	0.62976	0.0	8.14	0	0.5380
15	19.3	17.8	18.2	0.63796	0.0	8.14	0	0.5380

Show perfomance scores

Model	MSE	RMSE	MAE	R2
Linear Regression	21.895	4.679	3.271	0.741
Neural Network	6.521	2.554	1.852	0.923

506 | 1 | 2×506

Neural Network - Orange

Name

Neural Network

Neurons in hidden layers: 13,13,13

Activation: ReLu

Solver: Adam

Regularization, α=0.0001:

Maximal number of iterations: 1000

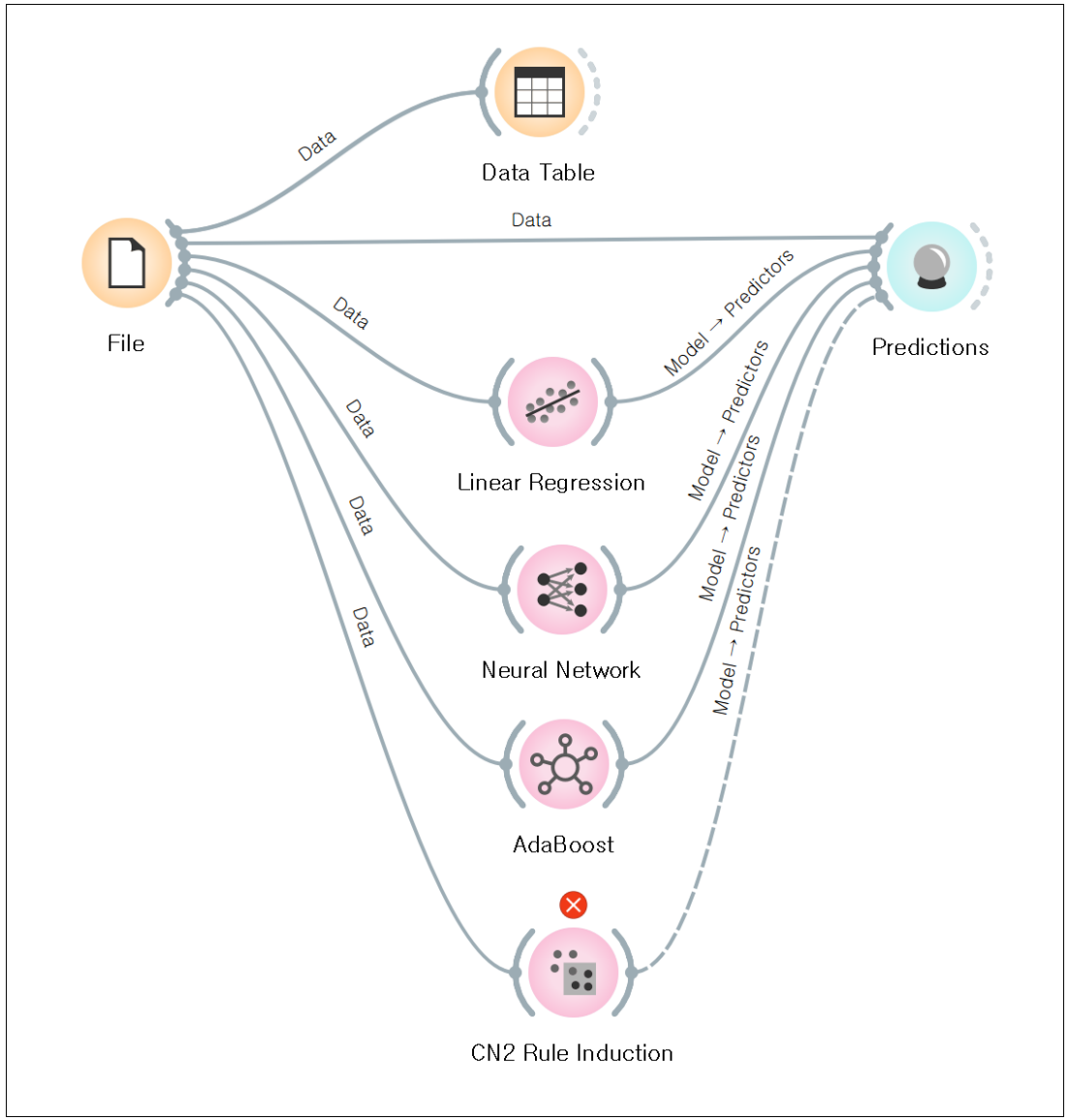
Replicable training

Cancel

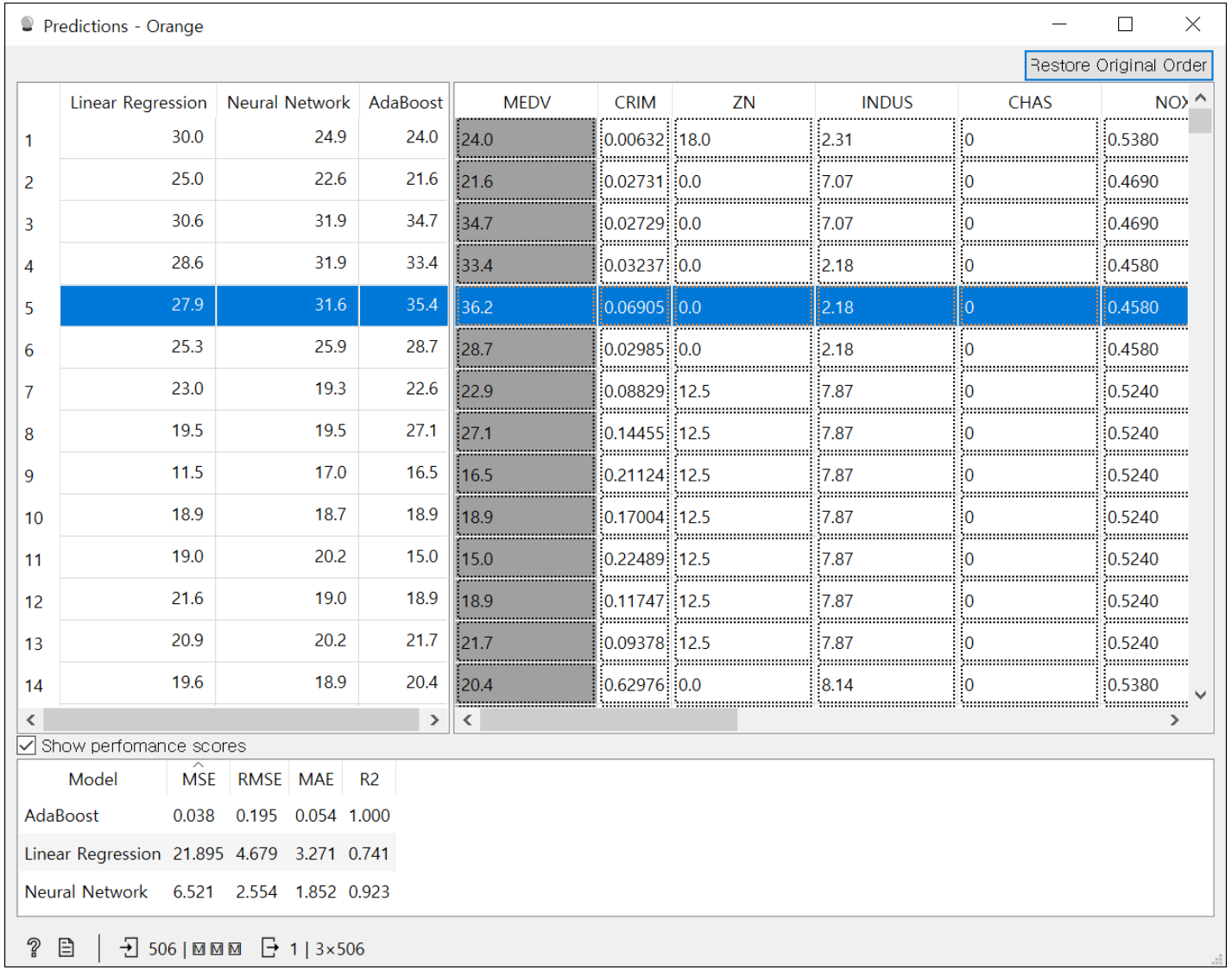
Apply Automatically

506 | -

지도 학습_보스턴 주택 가격 데이터



지도 학습_보스턴 주택 가격 데이터



	Linear Regression	Neural Network	AdaBoost
1	30.0	24.9	24.0
2	25.0	22.6	21.6
3	30.6	31.9	34.7
4	28.6	31.9	33.4
5	27.9	31.6	35.4
6	25.3	25.9	28.7
7	23.0	19.3	22.6
8	19.5	19.5	27.1
9	11.5	17.0	16.5
10	18.9	18.7	18.9
11	19.0	20.2	15.0
12	21.6	19.0	18.9
13	20.9	20.2	21.7
14	19.6	18.9	20.4

MEDV	CRIM	ZN	INDUS	CHAS	NOX
24.0	0.00632	18.0	2.31	0	0.5380
21.6	0.02731	0.0	7.07	0	0.4690
34.7	0.02729	0.0	7.07	0	0.4690
33.4	0.03237	0.0	2.18	0	0.4580
36.2	0.06905	0.0	2.18	0	0.4580
28.7	0.02985	0.0	2.18	0	0.4580
22.9	0.08829	12.5	7.87	0	0.5240
27.1	0.14455	12.5	7.87	0	0.5240
16.5	0.21124	12.5	7.87	0	0.5240
18.9	0.17004	12.5	7.87	0	0.5240
15.0	0.22489	12.5	7.87	0	0.5240
18.9	0.11747	12.5	7.87	0	0.5240
21.7	0.09378	12.5	7.87	0	0.5240
20.4	0.62976	0.0	8.14	0	0.5380

Model	MSE	RMSE	MAE	R2
AdaBoost	0.038	0.195	0.054	1.000
Linear Regression	21.895	4.679	3.271	0.741
Neural Network	6.521	2.554	1.852	0.923